# Developmental Biology

## An International Journal

Published under the Auspices of the Society for Developmental Biology

M. V. EDDS, JR., Editor-in-Chief

### Consulting Editors

H. DENIS • M. FELDMAN • G. GIUDICE • W. S. HILLMAN

A. LANG • B. PIERCE • D. PRESCOTT • S. ROSEMAN

J. W. SAUNDERS, JR. • L. SAXEN • R. SCHIMKE • H. A. SCHNEIDERMAN

R. SIDMAN • D. SLAUTTERBACK • I. M. SUSSEX • A. SUSSMAN

P. TARDENT • H. URSPRUNG • N. K. WESSELS • F. H. WILT

Volume 24 • 1971



ACADEMIC PRESS, NEW YORK AND LONDON

COPYRIGHT © 1971, BY ACADEMIC PRESS, INC.

#### ALL RIGHTS RESERVED

NO PART OF THIS VOLUME MAY BE REPRODUCED IN ANY FORM, BY PHOTOSTAT, MICROFILM, BY RETRIEVAL SYSTEM, OR ANY OTHER MEANS, WITHOUT WRITTEN PERMISSION FROM THE PUBLISHERS.

# CONTENTS OF VOLUME 24

Number 1, January 1971

TIMOTHY LYERLA AND H. CLARK DALTON. Genetic and Developmental Characteristics of a New Color Variant, Axanthic, in	
the Mexican Axolotl, Ambystoma mexicanum Shaw (Accepted	
September 15, 1970)  J. Douglas Caston. Studies on tRNA and Aminoacyl-tRNA	1
Synthetases during the Development of Rana pipiens (Accepted	
September 17, 1970)	19
the "Germ Plasm" in Eggs and Embryos of Rana pipiens (Ac-	
cepted September 21, 1970)	37
W. D. WOODWARD AND J. R. FISHER. Suppression of Chick Pan-	
creatic Xanthine Dehydrogenase by Unsaturated Fatty Acids.	
(Accepted September 22, 1970)	54
A. GARCIA-BELLIDO AND J. R. MERRIAM. Parameters of the Wing	
Imaginal Disc Development of Drosophila melanogaster (Accepted September 26, 1970)	61
D. K. McClean and A. H. Warner. Aspects of Nucleic Acid	01
Metabolism during Development of the Brine Shrimp Artemia	
salina (Accepted September 28, 1970)	88
FRANK V. MORZLOCK AND DAVID L. STOCUM. Patterns of RNA	1
Synthesis in Regenerating Limbs of the Adult Newt, Triturus	100
viridescens (Accepted September 29, 1970).  DAVID A. WRIGHT AND STEPHEN SUBTELNY. Nuclear and Cyto-	106
plasmic Contributions to Dehydrogenase Phenotypes in Hybrid	*
Frog Embryos (Accepted October 5, 1970)	119
Announcement	141
Number 2, February 1971	
M. MAIRY AND H. DENIS. Recherches biochimiques sur l'ooge-	
nèse. I. Synthèse et accumulation du RNA pendant l'oogenèse	
du crapaud sudafricain Xenopus laevis (Accepted September	143
30, 1970)	145
a Temperature Sensitive Autosomal Dominant, Female Sterile	
Gene in Drosophila melanogaster (Accepted October 9,	
1970)	166

NORMAN W. KLEIN, JAMES D. YAGER, JR., AND KAREN HAGEDORN. The Direct Effect of Protein Starvation on Protein Breakdown and Synthesis in Regions of the Cultured Early Chick Embryo	
(Accepted October 14, 1970).  ROBERT L. SEARLES AND MARTHA Y. JANNERS. The Initiation of Limb Bud Outgrowth in the Embryonic Chick (Accepted Oc-	178
tober 19, 1970)	198
Development in the Absence of Cytoplasmic RNA Synthesis in Nonnucleate Egg Fragments and Embryos of Sea Urchins: Effect of Ethidium Bromide (Accepted October 19, 1970)	214
Peter J. Bryant and Gerold Schubiger. Giant and Duplicated Imaginal Discs in a New Lethal Mutant of Drosophila mela-	214
nogaster (Accepted October 20, 1970)  Joe G. Hollyfield. Differential Growth of the Neural Retina in	233
Xenopus laevis Larvae (Accepted October 21, 1970)  Frederick Meins, Jr. Regulation of Phenotypic Expression in Crown-Gall Teratoma Tissues of Tobacco (Accepted October	264
21, 1970)	287
GÉRARD BRUGAL. Relations entre la prolifération et la différenciation cellulaires: étude autoradiographique chez les embryons et les jeunes larves de <i>Pleurodeles waltlii</i> Michah (Amphibien	
Urodèle) (Accepted October 19, 1970)  HAROLD H. LEE. Reaggregation and Reorganization of Juvenile Chicken Testicular Cells in Vitro (Accepted October 27,	301
1970)	322
trophoresis of Early Amphibian Embryonic Cells (Accepted October 27, 1970)  ELENA CITKOWITZ. The Hyaline Layer: Its Isolation and Role in	335
Echinoderm Development (Accepted November 2, 1970) . G. Kass-Simon and Mary Potter. Arrested Regeneration in the	348
Budding Region of Hydra as a Result of Abundant Feeding (Accepted November 6, 1970)	363
Armando Sabbadin. Self- and Cross-Fertilization in the Compound Ascidian, Botryllus schlosseri (Accepted November 8, 1970)	0.770
J. A. Brumbaugh. The Ultrastructural Effects of the <i>I</i> and <i>S</i> Loci upon Black-Red Melanin Differentiation in the Fowl (Accepted	379
November 12, 1970)	392

. . . . . . . . . 392

WILLIAM C. CLAYCOMB AND CLAUDE A. VILLEE. Lactate Dehy-	
drogenase Isozymes of <i>Xenopus laevis:</i> Factors Affecting Their Appearance during Early Development ( <i>Accepted November</i>	
18, 1970)	413
Donna L. Daentl and Charles J. Epstein. Developmental Interrelationships of Uridine Uptake, Nucleotide Formation and Incorporation into RNA by Early Mammalian Embryos (Ac-	
cepted November 23, 1970)	428
Désiré Bullière. Les mécanismes de la régénération étudiés	
chez Blabera craniifer (Insecte Dictyoptère) a l'aide d'irradia- tions localisées aux rayons X (Accepted November 25,	
1970)	443
Number 4, April 1971	
Martha Y. Janners and Robert L. Searls. Effect of Removal of the Apical Ectodermal Ridge on the Rate of Cell Division in the Subridge Mesenchyme of the Embryonic Chick Wing (Ac-	
cepted October 27, 1970)  John H. Postlethwait and Howard A. Schneiderman. A Clonal Analysis of Development in Drosophila melanogaster: Morphogenesis, Determination, and Growth in the Wild-Type	465
Antenna (Accepted November 24, 1970)	477
27, 1970)	520
RANDAL W. REYER. DNA Synthesis and the Incorporation of Labeled Iris Cells into the Lens during Lens Regeneration in	
Adult Newts (Accepted December 7, 1970)	533
R. E. ECKER AND L. D. SMITH. The Nature and Fate of Rana	000
pipiens Proteins Synthesized during Maturation and Early	
Cleavage (Accepted December 10, 1970)	559
Susan V. Bryant, Derek Fyfe, and Marcus Singer. The Effects	
of Denervation on the Ultrastructure of Young Limb Regener-	
ates in the Newt, Triturus (Accepted December 11, 1970)	577
PIERRE TARDENT, FRANZISKA RICH, AND VERENA SCHNEIDER. The Polarity of Stenothele Differentiation in Hydra attenuata Pall	
(Accepted December 3, 1970)	596
Author Index	609
SUBJECT INDEX	610

#### Information for Authors Submitting Manuscripts to be Published after September 1971

Developmental Biology will publish in English original papers bearing on problems of development in the broadest sense; it will contain papers dealing with embryonic and post-embryonic development, growth, regeneration, and tissue repair, both of plants and animals. The journal will serve as meeting ground for studies on development employing techniques of a wide range of disciplines, e.g., biochemistry, biophysics, cytology, experimental morphogenesis, teratology, genetics, immunology, microbiology, pathology, and pharmacology.

Articles should not exceed 15,000 words and should be accompanied by an abstract that gives, in 200 words or less, a synopsis of the work including methods and results. Brief Notes must not exceed 2000 words. The usual format is: abstract, introduction, methods and materials, results, and discussion, but authors are encouraged to present their material in the most logical and appropriate form. Indicate the address for galley proof. In order to save time, page proofs will not be sent to authors. Our aim is to keep the publication time less than 6 months. Two copies of the manuscript (the original and one carbon) and two copies of the figures should be mailed to Dr. Elizabeth Hay, Department of Anatomy, Harvard Medical School, Boston, Massachusetts 02115.

Manuscripts should be concise and consistent in style, spelling, and use of abbreviations. They must be typewritten, double-spaced, on one side of white bond paper about 8-½ x 11 inches in size, with the pages numbered consecutively. Include with full length articles a running page headline not exceeding 35 letters and spaces. Use footnotes sparingly, if at all. Cite them, using superscript numbers, in consecutive order in the text. Type them consecutively on a separate sheet. Acknowledgments and figure legends should also be typed, double-spaced, as separate sections.

Tables should be used to condense data referred to in the text. They should be typed on separate pages, numbered consecutively with Arabic numerals in order of mention in the text, and collected at the end of the manuscript. Give each table a concise, descriptive heading. Tables should be so composed that the material they contain can be grasped without reference to the text.

Figures should be numbered consecutively in the order of their appearance and each should have a descriptive legend. Indicate magnifications. Line drawings should be made with India ink on smooth white paper or the equivalent. Where original drawings for the printer's use are larger in size than 8-12 x 11, enclose smaller,

unmounted prints for editorial use. Photographs should be unmounted, actual size, labeled and ready for half-tone reproduction. Use glossy prints with strong contrast; photo-offset printing reduces contrast. When several figures make up a plate, mount them on the back of a piece of photographic paper or indicate in some other way how they should be mounted. Use cardboard only to protect the package in mailing. The engraver will tool thin white lines between mounted figures later. Maximum size for figures is 5-1/2" x 8" for double column and 2-3/8" x 8" for single column. Where large micrographs are especially helpful, the full page may be utilized (6-3/8" x 10"), but all plates must be 6-38" final width if this form is chosen. Moreover, to allow for binding and for trimming by printer, add 1/8" to width and 14" to length of the original print, and place lettering. including figure numbers, no closer than 34" to the margin. Figure numbers and lettering should be of uniform size, 4-7 mm high. Indicate on the galley proof where the figures are to be placed. Mark all figures with the author's name and address. The author will defray the expense for colored plates. Two pages of half-tone figures per article will be published without cost to the author; a charge of \$50 per page will be required for pages in excess of this number. Fifty gratis reprints are supplied. Additional reprints may be ordered when galley proof is returned.

References to the literature may be cited in one of the following forms: Doe (1955) has observed that...; (Doe, 1955; Doe et al., 1960); (Doe, 1961, p. 250). Use suffixes a, b, etc. following the date to distinguish two or more works by the same author(s) in the same year, e.g., Doe 1960a, b. Arrange literature citations in the bibliography alphabetically according to the surname of the author, using the following order of items: author(s), date of publication, title of article or book, journal name, volume number, inclusive pages, publisher and city (for books only). Abbreviate titles of journals in accord with Chemical Abstracts' Service Source Index (1969 Edition).

Announcements should be sent to the Editor-in-Chief to arrive by the 15th of the month preceding the issue in which the material is to appear. News, opinion and letters should be sent to Dr. Eugene Bell, Department of Biology, Massachusetts Institute of Technology, Cambridge, Massachusetts, 02138, U.S.A. The correspondence section is not to be used as a medium for rapid publication of data. It is a forum for active exchange of ideas and opinions about research in developmental biology. Half-tone figures are not accepted, but in suitable cases line drawings will be. Material related to Current Literature should be sent to Dr. Francis J. Manasek, Department of Anatomy, Harvard Medical School, Boston, Massachusetts, 02115, U.S.A.

